



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

P R E S E N T S
 MADE TO THE
R O Y A L S O C I E T Y
 From July 1778 to June 1779;
 W I T H
 The N A M E S of the D O N O R S.

Donors.	Presents.
1778.	
Nov. 5. Le P. Chrysolegue de Gy.	Abrégé d'Astronomie pour l'Usage des Planisphères. 8°
Bishop of London.	Isaiah: a new Translation, with a preliminary Dissertation. 4°
M. Blondeau.	Journal de Marine, ou Bibliothèque Raisonnée de la Science du Navigateur. 4°
Dr. Howard.	Ode to the warlike Genius of Great Britain. 4°
Mr. John Nichols.	Anecdotes of the late Mr. Bowyer. 8°
12. Rev. Dr. Owen.	Collatio Codicis Cottoniani Geneseos cum Editione Romana. 8°
19. The Author.	Ephemerides Mediolenses, 1779. 8°
Sir John Pringle, Bart.	A Portrait of himself, presented at the Request of the Council.
26. Dr. John Step. Housman.	De Morbis Venereis larvatis. 4°
Dec. 10. Lord Cowper.	Osservazioni sulla Capacità de Conduttori Electrici. 4°
17. Mr John Whitehurst.	An Enquiry into the State of the Earth. 4°
24. Nic. Olivarus.	Tractatus de Corporis nostri motu. 12°
Mr. Wegg.	A Meteorological Journal kept at York Fort. fol.
Mr. Jeaurat.	Connoissance des Temps, pour 1781. 8°
	Donors.

Donors.

		Presents.
1779.		
Jan. 14.	Dr. Johnston. Dr. Pallas.	A Treatise of the malignant Angina. 8° Novæ Species Quadrupedum, è Glirium ordine. 4°
	Mr. William Skinner.	A Chart of the Gulph of Cambay, with di- rections for navigating the said Gulph, and a Draught of Tannah River, Bofseen and Mahim Bars.
	Mr. Pennant.	An engraved Portrait of himself, by Sher- win.
21.	Mr. J. H. de Magellan.	Relation ou Notice des derniers jours de J. J. Rousseau. 8°
		Description of a Glass Apparatus for making Mineral Waters, with the Description of a new Eudiometer. 8°
		Description des nouveaux Instrumens circu- laires à Réflexion, pour observer avec plus de Precision, des Distances angu- laires sur Mer. 4°
	Mr. Jos. Poli.	Lezioni di Geografia e di Storia Militare, 2 vols. 8°
		La Formazione del Tuono, della Folgore, e di varie altre Meteore. 8°
		Reflessioni intorno agli effetti di alcuni Ful- mini. 8°
28.	Mr. Hope.	The Four last volumes of the Transactions of the Philosophical Society of Harlem. 8°
	Dr. Lettsom.	History of the Origin of Medicine. 4°
Feb. 25.	Capt. John Smith.	An universal Military Dictionary. 4°
March 11.	Mr. Pennant.	The Fourth Edition of British Zoology, 4 vols. 4°
	Dr. Maskelyne.	Voyage fait en 1771 et 1772, pour vérifier l'Utilité de plusieurs Méthodes et Instru- mens servant à déterminer la Latitude et la Longitude, tant du Vaisseau que des Côtes, Isles et Ecueils qu'on reconnoit, 2 vols. 4°
18.	Anton. Brugmann.	Magnetismus seu de Affinitatibus Mag- neticis. 4°
		Donors.

Donors.

1779.

March 18. Anton, Brugmann.

April 15. Judge Ashurst.

Mr. John Nichols.

Dr. Sam. Musgrave.

Dr. Beerenbrook.

22. Mr. Sherwin.

29. Mr. Gascoyne.

May 6. Mr. John Nichols.

20. Rev. Dr. Priestley.

June 3. Dr. Ortega.

Dr. Cullen.

Mr. Reuben Burrow.

Dr. Price and Mr. Morgan.

20. Acad: of Scien. Brussels.

17. Mr. Parmentier.

24. Mr. Faujas de Sainfond.

Mr. Laborde.

Mr. Bailly.

Presents.

Tentamina Philosophica de Materia Magnetica. 4°

An Ovum in Ovo of an uncommon Size, laid by a Goose.

An English Translation of the History of the Royal Abbey of Bec, near Rouen in Normandy. 8°

Six Old Plays, on which Shakspere founded his Measure for Measure, Comedy of Errors, Taming the Shrew, King John, King Henry IVth and VIth, and King Lear, 2 vols. 8°

Gulstonian Lectures read at the College of Physicians. 8°

Guili, Culleni Primæ Lineæ Medicinæ. 8°

An engraved Portrait of Captain Cook.

An Attempt to improve the Method of arming Vessels. 8°

A Supplement to Dr. Swift's Works. 4°

Experiments and Observations relating to various Branches of Natural Philosophy 8°

A Specimen of China Rice raised in Valencia.

First Lines of the Practice of Physic, vol. 2. 8°

Restitution of the Geometrical Treatise of Apollonius Pergæus on Inclinations. 4°

The Doctrine of Annuities and Assurances on Lives. 8°

Memoires sur les Questions proposées par l'Academie de Bruxelles. 4°

Maniere de faire le Pain de Pomme de Terre, sans Melange de Farine. 8°

Recherches sur les Volcans eteints du Vivarais et du Velay. fol.

Voyage Pittoresque d'Italie, 4 num. fol.

Histoire de l'Astronomie Moderne, 2 vols. 4°

A N
 I N D E X
 T O T H E
 S I X T Y - N I N T H V O L U M E
 O F T H E
 P H I L O S O P H I C A L T R A N S A C T I O N S .

A.

A CID. More of the vitriolic in gypsum, than in selenitical spars, p. 17.

A ether, how to produce inflammable air with the vitriolic, p. 384. Air from it does not evaporate as the æther itself, p. 388. Its explosive force increased by camphire, p. 389. Great explosive force of very pure dephlogisticated air, and æther, p. 407. Reason why a drop of it communicates to dephlogisticated air a much stronger explosive force than common inflammable air from metals, p. 414.

Air. Difference between Dr. Priestley and Mr. Sheeble about the noxious effects of the inflammable, p. 336. Animals killed by breathing it, when the receivers that contained it were immersed in quick-silver, p. 338. Has the same effects when passed through water, as when shaken in water for a minute's time, p. 339. But may be breathed when shaken in it for a long time, p. 340. Kills quadrupeds not so readily as birds, *ibid.* Mr. Sheeble's breathing it may possibly be accounted for, by its being breathed through the lungs, and not the nose, *ibid.* Experiment proves the contrary, p. 341. Experiment to prove that inflammable air does not act upon the body of the animal, p. 342. Explanation of Abbé Fontana's formula to express the diminution of respirable air, p. 343. Experiment to shew inflammable air worse than common, p. 344, &c. Inflammable, better after being breathed than before, p. 348. Air from the lungs alters the nature of inflammable air, p. 349. Animals affected by inflammable air, more or less, according to their size, compared with the quantity of air, p. 351. Inflammable air still inflammable after being breathed, con-

trary to Mr. Sheele's assertion, p. 351. The light sensation on breathing inflammable air owing to its specific levity, p. 352. Air lightened by fire breathed more easily than more condensed air, p. 353. Why inflammable air can be breathed when mixed with common air, p. 355. Inflammable lighter than common air, and does not mix with it, p. 357. Account of the sparks which dart from the inflammable air of metals applied to a candle, p. 359. And which are the distinctive quality of inflammable air extracted from metals, *ibid.* Phlogistic principle more combined with this air than with the others, p. 360. Analysis of the decomposition of the inflammable air of metals, p. 361. Great expectations from the use of the dephlogisticated air as a remedy, p. 377. Large quantities of it extracted from water which has stood some time exposed to the sun, *ibid.* Reason why gunpowder does not want a free access of common air to be consumed by fire, p. 404. Uses which may be derived from the ability to produce any quantity of dephlogisticated at pleasure, p. 416. The usual state of it in the Hartz mines a mean among the different states of the exterior air as found by Mr. de Luc's observations, p. 495. Many modifications of it besides its weight and heat to be considered, p. 496. Difference of the effects of heat on it one great cause of the diversity of results in experiments, p. 498. Necessity of multiplying meteorological instruments to determine its influences, p. 501. Experiments on air extracted from the water of a well, p. 432. That extracted from the water of the river Seine, shewn to be better than atmospheric air, p. 434. Extracted from the water *d'Arqueil*, experiments on it, p. 436. Is shewn to be better than the air extracted from Seine water, p. 436, 437. That of distilled water extracted, and shewn to be better than that of the water *d'Arqueil*, p. 437. New characteristic by which dephlogisticated air may be distinguished from common, p. 439. A greater quantity of those airs which contain the least phlogiston absorbed by water, *ibid.* Impossible to determine the quality of it when extracted from vessels filled with water by means of fire, *ibid.* Result of experiments on water deprived of air, p. 440. Water diminishes the noxious part of tainted, and dephlogisticates common, *ibid.* How to prevent it being altered by the vapour of the water, in the above experiments, p. 442. Common air shaken in water is increased in bulk, *ibid.* Dephlogisticated is decreased, p. 444. Which shews that this last differs essentially from common air, *ibid.* Great nicety required in these experiments, p. 445. Experiments made to ascertain the salubrity of the atmospherical in various places, countries, and situations, not to be depended upon, p. 446. Difference of the air between one country, or any particular situation, and another, not so great as is commonly imagined, p. 447. Air taken from different parts of Paris and London examined, and found not to differ materially, p. 447, 448. Differences between the changes of air at the same place at different times, much greater than the difference of air of different

places or heights, p. 449. Uses to be derived from this method of examining air, p. 452. See *Gases*.

Air-Gun. Account of a brass one contrived by Mr. Maty of Turin, p. 392. And of one by Mr. Antony, p. 393.

Algebra. Problems concerning interpolations, p. 59. On the general resolution of algebraic equations, p. 86.

Allum. Tobacco-pipe clay fitted for the making of it, p. 19. Quantity of, afforded by the Porcelane clay from Cornwall, p. 21. How made of feld-spar, p. 23. And of the Labradore stone, *ibid.* And of shells, p. 24. Obtained from different slates, p. 25.

America. The growth of plants in, not to be estimated by what we see in our hot-houses, p. 250.

Annulus. Observation of a luminous, surrounding the disk of the moon, in an eclipse of the sun, supposed to be the effect of the lunar atmosphere, p. 106—111.

Anticonductor. Account of an anticonductor, and its advantages in exhibiting electrical experiments, p. 454. See *Electricity*.

Antimony. A liver of, from antimony and several spars, p. 19.

Antiquity. Account of a gun which had remained 200 years in the sea, p. 40.

Apes. Probable that there is a species of them in Africa, which is not the ancient Pithecos, p. 147. See *Orang-Outang*.

Aphonia. A concomitant of the St. Vitus's dance, p. 2.

Argentum vitreum. See *Silver*.

Ars. Foal ahs killed to examine the parts of generation, p. 282.

Astronomy. Observations at Cork in Ireland, p. 163. Observations with an astronomical clock, p. 167. Latitude of Cork in Ireland, p. 165. 167. 180, 181. Longitude of Cork, p. 167. Latitude and longitude of Cork, settled from observations at Cork, and at the Royal Observatory, p. 179.

Atmosphere. Colour occasioned by the refraction of, when a star is but a few degrees above the horizon, rather more than corrected by the refraction of the lens, added to the equatorial instrument, p. 335.

B.

Barometer. Observations made on it at the coast of Labradore, p. 652. Some barometrical experiments in the mines of the Hartz, p. 484. Their agreement with the geometrical measure, p. 491. Why the barometrical measure for the depth of mines is more certain than that for the height of mountains, p. 492. State of, at London for each month throughout the year 1778, p. 296. Greatest, least, and mean.

mean heighth of it there, in each month, p. 320. State of the barometer at Lyndon, in 1778, p. 547.

Beaumé, Mr. miſtaken in ſome chymical aſſertions, p. 11—20.

Belidor. Mistakes in his theory of Vaulone's pile engine, p. 121. And in the ſolution of a problem on the ſubject, p. 126.

Blifters failed to relieve in a St. Vitus's dance, p. 3.

Bones. Head of the *os humeri* ſawed off, and the motion of the limb preserved, p. 6. Treatment of a disease of the lower parts of the *ulna*, where it joins the *carpus*, p. 10. More than three inches of the enlarged bone ſawed off, where the *ulna* joins the *carpus*, *ibid*. Diseases of other joints recommended for cure by the ſame operation, *ibid*.

Bread-fruit. See *Sitodium*.

Breath. Eruption on the, relieved by ſalt-water, p. 54.

C.

Canal. See *River*.

Cane. See *Sugar-cane*.

Catoptric. Advantages of a new catoptric micrometer, p. 421. See *Micrometer*.

Cauk. Experiments on the Derbyshire, p. 17. Melted with antimony has appearances of Rulandus's false liver of antimony, p. 19.

Cementing crystalline particles the more immediate cause of the consolidation of all ſtones and marbles whatſoever, p. 8.

Charcoal. Reflections on the different methods of restoring to life thoſe choaked by, p. 329.

Chirurgical improvements by Mr. White, p. 6.

Clay. Change of it into feld-spar, and different gradations of the change, p. 12. Distilled with ſea-ſalt produces a ſal ammoniac, p. 21. Quantity of alum afforded by the porcelane clay from Cornwall, *ibid*.

Cæcum. Vermicular process of the *intestinum cœcum* in the Angoleſe and Afiaſtic Orang, and likewiſe in the Gibbon, unknown to Galen, p. 148.

Comet. Periodical time of that of 1770 investigated, and found not to be above five years and a half, p. 68. Argument on which this conclusion is founded, thought by the author equivalent to geometrical demonstration, p. 69. It consists in the assumption of elements answering to a periodical time of five years and ſeven months, which are found perfectly conſiſtent with the obſervations of this comet, *ibid*. Its not appearing according to this hypothesis probably owing to the influence of Jupiter upon its orbit, p. 82. Table of what part of the heavens it is to be looked

looked for when it appears next, p. 83. Note on this subject by the Astronomer Royal, p. 84.

Conductors. Account of an anticonductor, p. 454. Its advantages for exhibiting experiments analogous to the natural effects of lightning from the clouds, p. 453. Experiments to shew the advantages of pointed over blunt conductors, p. 46.

Cork in Ireland, latitude of, p. 165, 167, 180, 181. Its longitude, p. 167. Its longitude farther settled from observations at Cork, and at the Royal Observatory, p. 179.

Cow-calf. Account of a species of, called the Free martin, p. 285.

Crotch, William, the musical child, account of him, p. 187.

Crystal. Partly changed into selenitical spar, p. 12. The change owing to the lead ore which adheres to it, p. 14. How known from other substances with a sparry appearance, p. 27.

Curves. Demonstration of them suited to the purposes of optics, recommended to mathematicians, p. 425.

Cubberison, Mr. Electrical apparatus, with a double plate, contrived by, p. 663. Its amazing powers, p. 665.

Cuyers, Mr. His improvements in the double-plate electrical machine, p. 665.

Cynocephalus. See *Orang Outang*.

D.

Dipping. See *Needle*.

Dropfy. Extraordinary one, from a disease in the left ovary, p. 57. Woman tapped 155 times, and 465 gallons of water taken from her, p. 58.

E.

Earth. Problem to determine how much each particle of it is affected by the unequal action of the sun, p. 510.

Eclipse. Total, with duration, and annular of the sun, observed on the 24th of June, 1778, p. 105. Observation of the luminous annulus surrounding the disk of the moon, p. 106. This last appearance owing to the lunar atmosphere, p. 111. Point of the sun's disk seen before its limb began to emerge, p. 113. Solar spots seen during this eclipse, p. 117. Eclipse of the sun observed at Cork, p. 178.

Eddies and whirlpools, what they proceed from, p. 607.

Edwards, Mr. Mistake of his in the representation of the *Orang Outang*, p. 146.

Electricity.

Electricity. Cure of the St. Vitus's dance by, p. 1. Pulse quickened, and an eruption like the itch produced in all the joints, by positive, p. 4. An antispasmodic, p. 5.

Electricity. Improvement of the apparatus, p. 454. Account of an anticonducto^r, p. 454. Advantages of this apparatus, for exhibiting experiments more analogous to the natural effects of lightning from the clouds, than it is possible to do with only one conductor positively electrified, p. 453. Experiments to shew that the two conductors are differently charged, as soon as the cylinder is put in motion by turning the wheel, p. 456. Experiment to shew the possibility of compressing the electric matter, tho' the globes are perfectly insulated, p. 458. Experiments to shew the advantages of pointed over blunt conductors, p. 460.

Electricity. Account of an electrical plate machine, p. 663. Flat glasses used to excite it, instead of globes or cylinders, p. 661. Paste-board imbibed with copal or amber varnish substituted to the glass disks, p. 667. The machine described, and instances of strong electricity excited with it, p. 669. Machines of this kind lose their power by being kept in cold rooms, 671. How to preserve them, or restore their powers when lost, ibid. The conductor of a paper machine must not be furnished with metallic points, p. 672. Account of a plated machine, with a disk of baked wood, boiled in linseed oil, p. 671.

Equatorial. Apparatus applied to the equatorial instrument for correcting the errors arising from the refraction in altitude, p. 332. Inconvenience of the method hitherto used, p. 333. Uses of a spirit level fixed to the equatorial instrument, p. 334.

Equinoxes. On the precession of them produced by the sun's attraction, p. 505. Precession different, according as the ring at the equator is considered as fluid, or as hard and compact, p. 506—509. Problem of the precession of the, requires no principles but the received doctrine of motion, and the application of the lever, p. 509. Problem to determine how much any particle of the earth is affected by the unequal action of the sun, p. 510.

Eric Propperin. Mr. shewed that the observations of four months on the comet of 1770 could not be represented by a parabolic orbit, p. 84. Conjectured from thence that its orbit might be sensibly elliptical, p. 84.

F.

Feld-spar. Change of clay into, p. 22. The Labrador stone one, p. 25. How distinguished from crystal and quartz, p. 27.

Fontana, Abbé. Electrical plate machine contrived by, p. 663.

Forfait, Mr. a memoir of his, to indicate the best and cheapest methods of freeing navigable canals from banks of sand and earth formed in their beds, which render them too shallow; recommended, and an account given of it, p. 598.

Fre:

Fee Martin. Account of the, p. 279—285. Purposes for which they are preserved, p. 285. Their resemblance to oxen, p. 285, 286. The supposed excellence of their meat not a property of them universally, p. 286. Dubious whether there are any among sheep, p. 287. Account of Mr. Arbuthnot's, p. 289. Mr. Arbuthnot's more deserving of the name of hermaphrodite than the two following, p. 290. Account of Mr. Wright's, *ibid.* Of Mr. Wells's, p. 292.

Frog. Analogy of the organ of voice of the Orang Outang with that of frogs, p. 156.

Frost. Russian method of restoring circulation in a frozen limb, by means of friction with snow, p. 330.

G.

Galeu. Exactness of almost all his descriptions of the Cynocephalus, p. 141. Probable that he dissected an Asiatic Orang, p. 148. Vermicular process in the intestinum cœcum of several species of Orangs, unknown to him, *ibid.* Comparison of the organs of voice of the Prince of Orange's celebrated Orang, with Galen's descriptions, p. 154.

Gass. Easy method of producing a sufficient quantity of, without trouble or any particular apparatus, p. 380. Produced by mixing equal quantities of oil of vitriol and spirit of wine, and applying heat to the phial containing the compound, *ibid.* Advantages of this last gas above others, p. 381. Specific quantities of the different gasses examined, p. 382. One made of vitriolic æther, p. 384. Its properties, p. 386. And differences from the other inflammable air, *ibid.* Experiment to prove it specifically heavier than common air, p. 387. Cautions about firing the pistol to make it, p. 390. Why it cannot exert the force of a wind gun, p. 399. Experiment to shew that its compound with common air is much reduced in bulk after inflammation, p. 400. Great explosion of very dephlogisticated air and æther air, p. 407. See more under *Air.*

Generation. What causes the perfection of, p. 279.

Geometry. Horizontal Isochronic curve described, p. 583.

Glass. In which there is much alkaline salt, less fit for electricity than others, p. 665. Long exposed to heat, superior in strength for electrical purposes to a cake of rosin, used in the electrophorus, p. 666. Disks made with it must not be dried by the fire, *ibid.*

Gold and silver, found in their metallic form, mixed in a large proportion in an ore from Norway, p. 531.

Gold Pyrites examined, p. 528. And found seldom to contain gold, p. 528. Experiments on a piece of gold ore, which turned out to be gold in its native form, and not mineralized, p. 531.

Grenades. Observations on the climate of the, p. 216. Rain fallen there from June 1772, to June 1773, p. 217.

Gunpowder. Its force generally attributed to the sudden extrication of a great quantity of permanent aerial fluid, within a narrow space incapable of containing it, p. 391. This elastic fluid supposed by Robins to contain 250 times the bulk of the powder, ibid. Opinion of Count Saluce on this subject, p. 392. Uses to which the extrication of so much permanent aerial fluid has been put by philosophers, p. 392. Account of a brass air gun, contrived by Mr. Maty of Turin, ibid. And of one by Mr. Antoni, p. 393. What the difference between the quantity of elastic fluid obtained by Robins, and others, may have been owing to, p. 393. Bernoulli's calculation of it probably nearest the truth, but proves the justness of that of the others, p. 394, 395. Nature of gunpowder explained in a different way from what it has hitherto been, p. 395—397. Nitre and charcoal sufficient of themselves to make very good, p. 397. Its force owing to the extrication of the dephlogisticated air from the nitre, and of the inflammable air from the charcoal, by the fire which inflames it, p. 398. Difference of the inflammation of gunpowder, and of dephlogisticated and inflammable air in the air-pistol, what owing to, ibid. Probable that the dephlogisticated and inflammable air, extricated in the firing of it, undergoes a diminution by its inflammation, p. 401. Agreement of this supposition with the analysis of gunpowder, as made by Abbé Fontana, p. 402. Accurate calculation of the expansion of, a very difficult undertaking, p. 403. Reason why it does not want a free access of common air to be consumed by fire, p. 404. Why a single spark of fire propagates the combustion throughout it with great rapidity, p. 405. Reasons for thinking modern philosophers would have discovered it, p. 406.

Gypsum. More vitriolic acid in gypsum than in selenitical spars, p. 17. How distinguished from other substances of the same appearance, p. 28.

H.

Hartz. Barometrical observations in the mines of the, 486—502.

Hermaphrodites divided into two kinds, the natural and uncommon, p. 280. Account of the natural, p. 281. Of the unnatural, ibid. One part of each sex which they do not possess, p. 281. Such hermaphrodites appear at first view to be females, and are very frequent among horses, p. 282. Description of one of this sort, p. 281. In general would appear an object of chance, p. 284. Circumstance in the production of hermaphrodites in cattle, which seems to be an established principle in the economy of propagation of that species of animal, and not a production of chance, p. 284.

Horse. Account of the dissection of an hermaphrodite, p. 282.

Hunter, Dr. Assay of several ores in his museum, p. 527.
Hygrometer. Observations with Mr. Smeaton's, p. 167—175.

I.

Jaspers, how formed, p. 25.

Iconantidiptic. See *Telescope*.

Incrustation, a particular one described, p. 41. How formed on the windows of Russian houses, p. 326. Dangerous effects of such, *ibid.*

Inundations. See *Rivers*.

Iron, and its solutions, contribute to hasten and promote the progress of the concretion and induration of stone, whenever they meet with cementing crystalline particles, which abound in sea-water, p. 38. Any induration, or petrefaction of matter, much hastened, and the consolidation rendered much more compleat by being near a mass of iron, still more by the admixture of any solution of that metal, p. 39. Confirmation of this doctrine by three instances, p. 40, 41. 43, 45. Dr. Fothergill's conjectures on this subject, p. 47. Common sea sand, with a small mixture of the solution of iron, may become a very useful stone, p. 48.

Iron spathose ores, account of, p. 29.

Jupiter. Eclipses of the satellites of, observed at Cork, p. 165—177. At Greenwich, p. 179.

L.

Labrador stone, account of the, and of allum made with it, p. 23.

Lead. Account of the white lead ore, p. 29. Tobacco-pipe duly prepared, proposed to be used by painters instead of white lead, p. 20.

Lenses, a concave, and a convex, applied before the object-glass of the telescope of the equatorial instrument, to correct the errors arising from the refraction in altitude, p. 333.

Level. Spirit level fixed to the equatorial instrument, its uses; p. 334.

Levels. General and easy methods of taking them through large extents of countries where rivers pass, p. 643.

Life. Difference in the modes of restoring to it those who are deprived of it by water, and those who have lost it by the fumes of charcoal, p. 329.

Lightning. Its effects on board the *Atlas*, p. 160. Struck the main-mast head, descended down the rigging, and entered the gun-deck, *ibid.* Man struck dead by, p. 161. No damage done to the ship, masts, or rigging, nor any visible track of the lightning to be found on the masts, *ibid.*

Load-stones, artificial, how made by Dr. Knight, p. 51.

M.

Macrocarpon. See *Sitotolum*.

Magnetic variation observed at Cork, p. 178. See *Needle*.

Magnetism. A thin cylindrical tin tube susceptible of a considerable degree of, p. 543.

Marbles continually forming in the earth, p. 47. Their consolidation, how effected, *ibid.*

Meteorology. Necessity of multiplying instruments to determine the various influences of the air, p. 501. Meteorological journal for 1778, kept at the house of the Royal Society, p. 296. Meteorological observations on the coast of Labrador, p. 657. Journal for 1778, kept at Bristol, p. 551.

Mica. How known, p. 29.

Micrometer. Imperfections of that which depends on moveable parallel wires, p. 419. The uncertainties in the observations made with a divided object glass one, investigated, and found to depend on its principle, p. 420. Advantages of a new catoptric one, 421. Its construction and properties, p. 422. Method of adjusting and using it, p. 425. Description of a new one, suited to the principle of refraction, p. 428. Its superiority to the object-glass micrometer, what it consists in, p. 429.

Mines. Account of some barometrical experiments in the mines of the Hartz, p. 483.

Barometrical observations in several of these mines, p. 502.

Monet, Mr. Cause of his error in supposing that the semitransparent spar contains sulphur, p. 15.

Montmartre. See *Plaster*.

Moon. Observations of a luminous annulus surrounding her disk in an eclipse of the sun, p. 106. Effect of her atmosphere, p. 111.

Music. Account of an infant musician, p. 183. What a supernatural disposition to music in infancy consists in, p. 185. History of William Crotch, the infant musician, p. 187. Astonishing properties of his ear, p. 197. His excellencies, what they consist in, p. 196. His powers of transposing, at two years and four months old, whatever he played, p. 199. Account of musical prodigies more advanced in age, p. 201, 202, 204. Conjectures on what William Crotch may mature into, p. 204. Experiments proposed to be tried with him, *ibid.* Absurdity of leaving him to himself, without further teaching, p. 205. Evident that he would like the plainest music best, if different genera and divisions of the musical scale were tried upon him, *ibid.* Not all children susceptible of being taught music, at least not in the cradle, p. 206. Primitive powers in music sometimes become stationary, the reasons for it assigned, *ibid.*

Mozart. His talents for music at eight years old, p. 204.

Needle,

N.

Needle. Journal of the variation-needle, kept at Royal Society's house, for a fortnight, p. 321. Journal of the dipping needle for a fortnight, p. 323.

Needles. Account of some new methods of suspending magnetical, p. 537. Inconvenience of the best executed ones, with respect to the facility with which they are dragged out of their direction, p. 537. Remedied in different ways, p. 539. By putting them under water, p. 539. Thin steel tubes recommended for this purpose, p. 544. Inconveniences of common water for this purpose, and recommendation of expressed oils, p. 545.

Nitre. Why it explodes when combustible substances are thrown upon it, p. 396.

O.

Orang-Outang. Account of the organs of speech of the, p. 139. Exactness of almost all Galen's descriptions of the Cynocephalus, p. 141. Why this animal cannot modulate his voice so as to articulate, p. 142. The meatus, or processus peritonæi, closed in the Simia caudata imberbis, cauda subprehensili, corpore fusco, pedibus nigris, p. 143. Two papiones or sphinges of Linnæus dissected, *ibid.* Seven examined by Professor Camper, p. 144. Want of nails on the great toes of the feet, and of the second phalanx of the great toes, a remarkable character in these animals, p. 146. A little nail and two phalanxes seen on the great toe of one, *ibid.* Singular red long hair, and shortness of the neck, another very peculiar property, *ibid.* Mr. Edwards mistaken in the representation of the Orang-Outang, *ibid.* The figures of the Orangs, described by Tulpus and Tyson, deficient in many respects, p. 147. Probable that Africa furnishes a species of apes which are not the Pithecos of the ancients, *ibid.* Probable that Galen dissected an Asiatic Orang, p. 148. Vermicular process of the intestinum cæcum in the Angolese and Asiatic Orang, and likewise in the Gibbon, unknown to Galen, *ibid.* The organs of speech described, *ibid.* The ventricles of one united, so as to form but one, p. 150. Quere, whether they grow together thus, or whether this be a variety? *ibid.* History of the Orang belonging to the Prince of Orange, which died in 1777, p. 151. Account of the internal part of the organ of voice, and comparison of it with Galen's description, p. 154. Reason why this animal cannot speak, p. 155. Analogy of its organs of voice with that of frogs, p. 156.

Ores. Assay of several in Dr. Hunter's museum, p. 527. See *Siliver.*

Os humcri. Head of one sawed off, and yet the motion of limb preserved, p. 6.

Ovary. A disease in the left, the cause of a dropsey, p. 57.

P.

Ralcbau. Account of a German boy of that name, with great talents for music, p. 201.

Petrefaction. Account of one, found on the coast of East Lothian, p. 35. A piece of rope that was adjoining to an iron ring, with sand so concreted round it as to retain impressions of parts of the ring, p. 36. Incrustation formed within three years in a square wooden pipe, in a coal mine in Somersetshire, p. 41. A progressive induration of masses of sand, and other matter, at the bottom of the ocean, on the coast of this island, as at the bottom of the Adriatic, p. 37.

Piles. Theory of a new machine for driving them, p. 120. Advantages of that invented by Vauloué, p. 121. Mistakes in Belidor's theory of Vauloué's machine, ibid. A new theory of it proposed, p. 122. Useful theorems for comparing different machines, and determining the cost of the works to be raised, p. 124. Problem to determine the depth to which a pile will sink at each stroke of a given machine, ibid. Belidor's mistakes in the solution of this last problem, p. 126. Mistakes of a writer in the Stockholm Transactions concerning it, p. 126. Several corollaries useful in practice, p. 127.

Pistol One for making inflammable air, p. 381. Very strong one, for firing dephlogisticated and æther air, p. 410.

Plants. Their growth in America not to be estimated by what we see in our hot-houses, p. 250.

Plaster. Comparison of the Paris Montmartre plaster stone, with several telenical substances, p. 16.

Pulvis fulminans, a new theory of, p. 404.

Pyrites. Assay of gold Pyrites, p. 528. Seldom contains gold, ibid. Has been thought to contain gold united first with iron, and that compound united with sulphur, ibid. Experiments on a piece which turned out to be in its native form, and not mineralized, p. 531.

Q.

Quartz. How known from other substances with a sparry appearance, p. 27.

R.

Rain. Account of that fallen at the Grenades, from 1772 to 1773, p. 217. Register of, at Lyndon, for 1778, p. 547.

Rattan. See *Sugar-Cane.*

Rivers.

Rivers. Essay on rivers and canals, p. 556. Importance of the subject, *ibid.* Account of authors who have demonstrated the principles laid down by Mr. Mann, p. 559. Theory of rivers and canals, p. 563. Definitions, *ibid.* Laws of action in rivers and canals, p. 564. How to find whether the water, in a part of a river where the bed is nearly horizontal, flows by the velocity acquired in the preceding declivities, or by the compression of the upper water on the lower in that place, p. 568. How to determine the velocity of each particle of water in a regular channel, p. 569. The nature of rivers and flowing waters considered, p. 571. Causes of the acceleration of motion in rivers, *ibid.* Causes of its retardation, p. 572. Principles for calculating the quantity of the percussion of the waters of a river against an obstacle opposed to their motion, p. 574. Greatest and least velocities of rivers, in what parts to be found, p. 576. How to measure the velocity of the current of a river, or open canal, p. 577. Application of the laws of the acceleration and retardation of currents to rivers and canals in general, p. 579. How to augment or diminish the velocity of water in rivers, p. 580. The perpendicular compression of the upper waters upon the lower augments, as all the other causes of motion in rivers diminish, p. 581. The junction of many streams in the same bed to be attributed to the wisdom of the Supreme Being, p. 582. How to dig the bed of a canal so that the velocity of the current shall be every where equal, p. 583. The depth of a river can only be augmented to a certain degree, in proportion to its breadth, without hurting the banks and weirs made to keep it in, p. 584. Causes which contribute to fill up the beds of rivers, and produce inundations, p. 586. Sluices themselves will produce these accidents, if the floors of their bottoms are not of a depth conformable to the bed of the canal, p. 588—591. How the principal accidents to which rivers and canals are liable may be prevented, p. 590. Great care, in digging the beds of rivers, must be had as to the quantity and form of their declivity, p. 594. Which must be increased in equal spaces, the farther we recede from their mouths, p. 595. One foot perpendicular of declivity to be allowed through ten thousand feet of horizontal extent, *ibid.* Six machines proposed by Mr. Forfait of Rouen, for removing banks formed in navigable canals, p. 598. Other considerations on the nature of rivers and inundations, p. 599. Rivers and canals have their beds raised, and their currents stopped by the subsiding of mud and heterogeneous matter in different places, especially just above their sluices, p. 600. Line of greatest current in a river or canal defined, and the changes in the beds of rivers, arising from its directions from the centers of the sections through which it passes, enumerated, p. 601. Why inundations are more frequent, considerable, and do more damage in the interior parts of a country than towards the mouths of most rivers, p. 604. Variations in the mouths by which they discharge their waters into the sea enumerated; together with the changes produced by them, p. 605. Effects of counter-currents,

islands in the middle of rivers, eddies and whirlpools, p. 607. Inconveniences of diminishing the velocity of the current, by widening the canal, and method of obviating those inconveniences, p. 608. Nature of inundations, and manner of their formation considered, p. 609. On the confluence of rivers, and on the separation of the same river into divers branches or mouths, with the effects thereof on the velocity of currents, inundations, &c. p. 611. Great rivers receive many others into their beds, p. 612. This confluence useful for many purposes, *ibid.* One river may fall into another of equal magnitude with itself, and yet the section of the current in the common bed, after their confluence, be no more than it was in each before their junction, p. 613. How to diminish the danger of an overflow, occasioned by the tides, wind, and rolling in of the sea at the mouths of rivers, p. 614. Advantages of sluices for these purposes, p. 616. Which, however, are only useful when there is a sufficient abundance of water in the rivers to fill the new beds and channels, so as to prevent the velocity of the currents therein from being notably diminished from what they were before the division, p. 618. Laws of the meeting of opposite currents, with the application of them to sluices, p. 619. Sluices need be shut only a quarter of an hour before the flood has risen to the level of water in the canal, p. 621. Experiments to determine the different velocities in different depths of water of the same floating body, moved uniformly by an equal force, p. 622. Dr. Franklin's experiments on this subject, repeated on a larger scale, with an account of the mechanism of the instruments used, p. 624. Table of the experiments, p. 629. And remarkable conclusion from the mean results of them, p. 630. On the quantity of declivity in rivers, p. 630. Principles to prove that the declivity and velocity of a river are less in proportion as the bed approaches nearer to being concentrical with the curve of the earth's surface, p. 633. The real quantity of declivity, in different rivers, determined as nearly as possible, *ibid.* Table of comparative proportions between the declivities and velocities in different kinds of rivers, p. 640. All the rivers in the world classified, p. 641. General view of the elevation of continents along the principal rivers of the known world, p. 654. *Rulandus.* Cauk wetted with antimony has appearances of his false liver of antimony, p. 19. *Russians,* how they treat persons affected by the fumes of burning charcoal, and similar effluvia, p. 324. Russian-houses, how heated, p. 327.

S.

Salt. Sal ammoniac produced by clays distilled with sea-salt, p. 21. Glasses, in which there is much alkaline salt, less fit for electricity than others, p. 665.

Salt-watter. Some relief obtained by it in the cure of a violent eruption on the face, neck, and breast, p. 54.

Sand. A progressive induration of masses of, at the bottom of the ocean, p. 37.

Selenite. Comparison of the Montmartre plaster stone, with several selenitical substances, p. 16.

Sheep. Dubious whether there are any Free-martins among, p. 287.

Shirl frequently, though erroneously, called basfates, p. 24. Contains nearly as much earth of alum as the Cornish porcellane clay, *ibid.* *Sal catharticus amarus* obtained from pumice stone and shirl, *ibid.*

Silver. Experiments on the ore called *argentum vitreum*, p. 532. Conclusive experiment to shew that vitreous silver ore is a compound of silver and sulphur, and that, when pure, it contains between ninety-two and ninety-three grains of silver in one hundred, p. 536.

Situdium incisum & Macrocarpon, or bread-fruit, described, p. 462. List of authors who have given an account of it, p. 462. The plants and seeds of, how preserved in a voyage from Ceylan to Europe, p. 463. Generic description of it, p. 464. Specific description of the *Situdium incisum*, p. 470. Observations on the *Macrocarpon*, p. 471. Various uses of its parts, p. 471. Description of the various dishes made of these fruits by the Dutch, p. 476.

Slate, Irish, replete with alum, p. 25.

Spar. Change of crystal into selenitical, p. 12. The selenitical, or gypseous spars, consist of acid of vitriol, calcareous earth, and some clayey matter, p. 14. Some among these enumerated, which were not before taken for selenitical spars, *ibid.* No sulphur in semitransparent *Auvergne* spar, p. 15. Experiments on these compared with the common Montmartre stone, p. 16. Calcareous earth in the gypsum, shewn to contain more acid of vitriol than that in the selenitical spars, p. 17. Change of clay into *Feld-spar*, and different gradations of the change, p. 22. Alum made of *feld-spar*, p. 23. And of the *Labrador* stone, *ibid.* Account of substances which have a sparry appearance, and how to distinguish them from spars, p. 27. *Phosphoric* spar, crystallized, forms perfect cubes, p. 28. One exception only to this rule, *ibid.* Of a set of spars whose properties were not hitherto known, and experiments made on one of them, p. 29. Probable that the green and yellow glimmers from *Johngeorgenstadt* may be of this kind, p. 30.

Stars. Account of an occultation of α *cancri*, by the moon, p. 165. Account of occultations of several, p. 178.

Stone. Consolidated by cementing crystalline particles, p. 8. A formation of it to this very day, in certain places, more perfect than is imagined, p. 38. Portland-stone considerably hardened by being washed with water impregnated with rusty iron, p. 44. Stones and marbles continually forming in the earth, and the consolidation of them effected by means of water and vapour, and the induration of many of

those bodies effected by iron, p. 47. Ornaments in Portland, and other, might be preserved by being washed or brushed with water, in which there is a solution of iron, p. 48. Common sea-sand, with a small admixture of the solution of iron, may become a very useful stone, *ibid.*

Sugar-Cane. The two methods in use for cultivating it before Mr. Cazaud's, p. 210, 211, 212. Explanation of Mr. Cazaud's method, and objections to it, p. 213. Natural history of the cane, p. 218. History of its roots and productions under ground, p. 219. Should be put into the ground as soon as cut, p. 221. First productions, what they are, *ibid.* Roots of the first and second order described, p. 223. Roots of the third order, what they are, p. 224. Second productions described, *ibid.* Third productions described, p. 226. Proof of the necessity of planting in May, p. 227. Canes derive their nourishment from the three orders of roots for the whole of their duration, p. 228. Strong argument against the pretended antiquity of the stools, p. 231. And of the inutility of replanting when the stump is not raised above the ground, *ibid.* Rattoons derive their nourishment only from three orders of roots, p. 233. Advantage of cutting the canes in the ground, and mischief of the method of moulding up the stump, p. 235. Why rattoons are forwarder at the twelve months end than planted canes at the end of fifteen, *ibid.* And why those cut at the end of ten, eleven, or twelve months, are finer than those which have stood fifteen, *ibid.* Why fine rattoons are never got from grounds called exhausted, p. 236. Why those cut before the time, are those which stood best, p. 237. Difference in the time of jointing of the canes, and in the different numbers of the rows of their roots, what owing to, p. 238. Advantages of chusing the rainy season for planting, p. 239. History of the joints of the cane above ground, p. 241. Calculation that may be made of their number, *ibid.* Cane of the thickness of a pen, and only three inches long, with its two and twenty joints, distinct, p. 244. Fall of the leaf only criterion of the maturity of the joint to which it adhered, p. 245. Relative maturity of the cane, what it depends on, p. 246. Four thousand gallons of juice yielded equally by canes cut at ten and fifteen months end, p. 247. Deductions drawn from this fact, p. 248. Account of the cane in different soils, p. 250. The growth of a plant in America not to be estimated by what we see it in our hot-houses, p. 250. Forty-eight to fifty the greatest number of useful joints, p. 252. Effects of dunging the foil in which canes are planted, p. 261. Cane never grows to any purpose after the thirteenth month, p. 264. History of a singular revolution in the cane, and of the arrow which follows it, and constitutes the last stage of the cane's existence, p. 264. The quantity of the juice of the cane lessened by dry weather, *ibid.* Drying-up of the joints, p. 265. History of the cane according to the two different methods of cultivation, and in different years, the favourable, the dry, and the rainy, p. 270.

Sulphur. None in the semitransparent Auvergne spar, p. 15.

Tartar

T.

Tartar of vitriol. Mr. Beaumé mistaken, in asserting that he obtained it from the blue Argilla, p. 20.

Telescope. Account of an iconantidiptic telescope, producing two images of the object, the one in a direct position, the other reversed, p. 130. The direct passage of the center of a star observed with this instrument, p. 131. The difficulty of illuminating the threads of the telescope obviated by this method, *ibid.* Why Casségrain's construction of the reflecting, is preferable to either the Gregorian or Newtonian, p. 426.

Thermometer. Description of one, for making experiments on the heat of boiling-water, p. 360. Table for the use of artists who make them for such purposes, p. 375. Register of the, at Lyndon; for 1778, p. 545. Observed at Nain and Okak, p. 658.

Tin, susceptible of a considerable degree of magnetism, p. 543.

Tin-spar of the Germans, experiments upon it, p. 26.

Tobacco-pipe, duly prepared, proposed to be used by painters instead of white-lead, p. 20.

Tobacco-pipe clay. Allum may be produced from, p. 19.

U.

Ugar, what it is, and its effects, p. 327.

Vitriolic acid, more of it in gypsum than in selenitical spars, p. 17.

Ulna. Treatment of a disease of the lower part of the, where it joins the bones of the carpus, p. 10.

W.

Water. First application of cold water to the human body produces heat, p. 330. The variation of the temperature of boiling, examined, p. 362. That the heat of boiling, is variable, known to Fahrenheit, *ibid.* Decisive experiments by Le Monnier and Caffini, to shew that this quantity is very variable, p. 363. Mr. De Luc's observations on this subject, repeated by Sir George Shuckburgh in a journey over the Alps, p. 364. And again in 1778, p. 365—367. True proportion of the pressure of the atmosphere, how obtained, p. 370. Sir George's observations compared with Mr. De Luc's, and with each other, p. 371—373. Water, which has stood some time exposed to the

the sun, yields a great quantity of dephlogisticated air, p. 377. Experiments on air, extracted from various kinds of water, p. 432. Experiments on air from the water of a well, p. 433. And from the water of the Seine, *ibid.* And from that of the river Arqueil, p. 436. And from distilled water, p. 437. Water absorbs a greater quantity of those kinds of airs which contain a less quantity of phlogiston, p. 439. These experiments explain why some kinds of waters have a sharper taste than others, p. 440. And why they precipitate the lime in lime-water, *ibid.* Likewise why some waters dissolve iron, and keep it dissolved without any sediment, *ibid.* Distilled water, deprived of air, imbibes an equal quantity of air of the same kind as that it had lost, in less than fifty days, *ibid.* Pure water changes common air into dephlogisticated, and is the best means of meliorating common air, *ibid.* Which may be one of the methods by which nature keeps the atmosphere in a state fit to support animal life, p. 441. How to prevent the air being altered (in extracting the air from water by the action of fire) by the vapour of the water itself, p. 442. Common air, shaken in water, is sensibly increased in its bulk, p. 443. But dephlogisticated air is diminished, p. 444.

Weather. Observations on that of the year 1778, made at Lyndon, p. 548. At Bristol, p. 553.

Weirs in rivers, the advantage of them, p. 594.

Wesley. Singular talents of two children of that name for music, p. 204.

Whirlpools. What they come from, p. 607.

White, Mr. Charles. A fact asserted by him, Vol. LIX. Art. 6th, of the *Philosophical Transactions*, confirmed, and a proof given that a surgical improvement, proposed by him in that article, may be extended to other parts of the body, p. 6.

Whiting. Experiment on dried, p. 33.

Windward-Isles. Observations on the climate of the, p. 216.

Winne, Mrs. Her early talents for music, p. 205.

Z.

Zinc. The flowers of, given without effect in a St. Vitus's dance, p. 2.

Zeolite. Experiments on the Norway, p. 27.